

# FORMATION OF INSULATING FILM

**Publication number:** JP59198724 (A)

**Publication date:** 1984-11-10

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**Classification:**

- **International:** **H01L21/314; H01L21/02;** (IPC1-7): H01L21/314

- **European:** H01L21/314

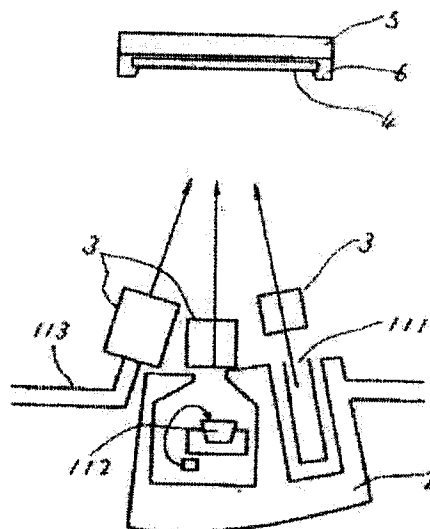
**Application number:** JP19830072106 19830426

**Priority number(s):** JP19830072106 19830426

**Abstract of JP 59198724 (A)**

**PURPOSE:** To enable to form an insulating film in high density, in high purity, and moreover to form in controlled composition by a method wherein the component elements of the insulating film are ionized at every element, and the beams of the ions thereof are irradiated on the surface of a substrate.

**CONSTITUTION:** Ion beam sources 111-113 are provided at the every component element of an insulator to be formed, and a liquid nitrogen shroud 2 to seize unnecessarily evaporated matters and impurity gas molecules is arranged at the circumference thereof. Ionizing cells 3, a substrate 4, a heater 5 and a substrate holder 6, etc. are provided. AT the ion beam sources 111-113, when raw materials are the solids of comparatively low melting points such as aluminum, magnesium, etc., the raw materials are filled up in crucibles manufactured of boron nitride, evaporated according to electric resistance heating of the circumference, evaporated atoms or atomic groups are ionized in the ionizing cells, and accelerated and converged to form an ion beam. Moreover, when the raw materials are the solid materials of high melting points such as silicon, boron, zirconium, etc., the ion beam is formed using evaporation sources according to electron beam heating.



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